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L-305 Wireless

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LANCOM L-305agn Wireless

Business class dualband MIMO access point for high-speed, secure and reliable wireless access of upto 300 Mbps

- 802.11n Draft 2.0 access point with support for 3x3 MIMO (Multiple Input, Multiple Output) technology

- Integrated MIMO Antenna Array

- Direct support available on the LANCOM WLAN Controller without expensive software upgrades

- Access point runs on industry standard 802.3af Power over Ethernet

- Secure wireless LAN through IEEE 802.11i, IEEE 802.1x/EAP, LEPS, with AES encryption in hardware

- Integrated DSL router incl. LANCOM high security firewall

- Separation of user groups by Multi-SSID and VLAN

- Optional: Hotspot support

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The LANCOM L-305agn Wireless is a single radio access point that is compliant with the IEEE 802.11n Draft 2.0 Standard and offers a maximum WLAN performance of upto 300 Mbps. The Access Point works in the 2.4 GHz and 5 GHz frequencies. The 5 GHz frequency is interference-free and is ideal for high throughput transmission. The L-305agn can be configured in standalone, managed and client modus. In managed modus, the access point can be securely managed by the LANCOM WLAN Controller.

More Performance

The 802.11n Draft 2.0 standard includes several mechanisms such as MIMO, 40 MHz channels, packet aggregation, and block acknowledgement which significantly increase the amount of bandwidth available for user applications. With throughput rates up to 300 Mbps, this represents a greater than five-fold increase over the performance of 802.11a/g networks

Better and Reliable Coverage.

MIMO technology uses multiple antennas at both the transmitter and receiver to transmit multiple spatial streams. The multiple transmit streams which take different routes in reflecting environments are combined at the receiver using MIMO techniques. The end result is a two-fold increase in throughput and improved wireless coverage due to lesser deadspots

More Security.

Right since its inception, LANCOM has implemented the highest of security standards. A comprehensive range of security technologies is supported in wireless LAN including IEEE 802.11i, 802.1x, WPA, WPA2, WEP64/128/152, access control lists or LEPS (LANCOM Enhanced Passphrase Security), which enables the configuration of an optimized solution, whatever the individual requirements. For example, Multi SSID allows the definition of up to 8 user groups, each with its own level of security.

More Management.

LANCOM's WLAN management tools offer real benefits to network administrators for the installation, control and monitoring of access points. LANCOM WLAN Controller has built-in support for the the L-305 access point. LANCOM's "Smart Controller" architecture is specifically designed to support high bandwidth applications by providing flexible data plane switching options. As a result higher bandwidth applications can directly offloaded at the access point and reduces the overall cost involved in expensive network upgrades required in centralized architectures. WLANmonitor visualizes the devices connected to WLAN irrespective of physical location and facilitates the central surveillance of the entire wireless network.

More Reliability for the Future.

From the very start, LANCOM products are designed for a product life of several years. They are equipped with hardware dimensioned for the future. Even reaching back to older product generations, updates to the LANCOM Operating System (LCOS) are available several times a year, free of charge and offering major features. LANCOM offers unparalelled protection of your investment!

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WLAN	
Frequency band 2.4 GHz or 5 GHz (EU compliance)	2400 - 2483.5 MHz (ISM) or 5150 - 5750 MHz or 5725 - 5825 MHz (UK only)
Integrated Antenna Gain	3 dBi in 2.4 GHz, 4,5 dBi in 5 GHz
Data rates 802.11b/g	54 Mbps to IEEE 802.11g (fallback to 48, 36 , 24, 18, 12, 9, 6 Mbps, Automatic Rate Selection) compatible to IEEE 802.11b (11, 5.5, 2, 1 Mbps, Automatic Rate Selection), 802.11 b/g compatibility mode or pure g or pure b
Data rates 802.11a	54 Mbps (fallback to 48, 36 , 24, 18, 12, 9, 6 Mbps, Automatic Rate Selection), fully compatible with TPC (adjustable power output) and DFS 2 (automatic channel selection, radar detection) according to ETSI regulations.
Data rates 802.11n	300 Mbps according to IEEE 802.11n Draft 2.0 with MSC15 (Fallback to 6,5 Mbps with MSC0)
Range 802.11a/b/g *	Up to 150 m (up to 30 m in buildings) *
Range 802.11n	Up to 250 m @ 6.5 Mbps (up to 20 m @ 300 Mbps indoor)*
Maximum transmission power 2.4 GHz	802.11b: +19 dBm @ 1 and 2 Mbps, +19 dBm @ 5.5 und 11 Mbps
Maximum transmission power 2.4 GHz	Output power at antenna connector 802.11g: +18 dBm @ 6 to 36 Mbps, +17 dBm @ 48 Mbps, +16 dBm @ 54 Mbps; 802.11n: +19 dBm @ 6,5/13 Mbps (MCS0/8, 20 MHz), +10 dBm @ 65/130 Mbps (MCS7/15, 20 MHz), +17 dBm @ 15/30 Mbps (MCS0/8, 40 MHz), +10 dBm @ 150/300 Mbps (MCS7/15, 40 MHz)
Maximum transmission power 5 GHz	Output power at antenna connector 802.11a/h: +18 dBm @ 6 to 24 Mbps, +17 dBm @ 36 Mbps, +16 dBm @ 48 Mbps, +15 dBm @ 54 Mbps; 802.11n: +18 dBm @ 6,5/13 Mbps (MCS0/8, 20 MHz), +10 dBm @ 65/130 Mbps (MCS7/15, 20 MHz), +17 dBm @ 15/30 Mbps (MCS0/8, 40 MHz), +10 dBm @ 150/300 Mbps (MCS7/15, 40 MHz)
Minimum transmission power	Transmission power reduction in software in 1 dB steps to min. 0.5 dBm
Receiver sensitivity 2.4 GHz	802.11b: -91 dBm @ 11 MBit/s, -96 dBm @ 1 MBit/s; '802.11g: -96 dBm @ 6 MBit/s, -83 dBm @ 54 MBit/s; 802.11n: -96 dBm @ 6,5 Mbps (MCS0, 20 MHz), -79 dBm @ 65 Mbps (MCS7, 20 MHz); -95 dBm @ 13 Mbps (MCS8, 20 MHz), -75 dBm @ 130 Mbps (MCS15, 20 MHz); -90 dBm @ 15 Mbps (MCS0, 40 MHz), -75 dBm @ 150 Mbps (MCS7, 40 MHz); -90 dBm @ 30 Mbps (MCS8, 40 MHz), -71 dBm @ 300 Mbps (MCS15, 40 MHz)
Receiver sensitivity 5 GHz	802.11a/h: -95 dBm @ 6 MBit/s, -82 dBm @ 54 MBit/s; 802.11n: -95 dBm @ 6,5 Mbps (MCS0, 20 MHz), -77 dBm @ 65 Mbps (MCS7, 20 MHz); -94 dBm @ 13 Mbps (MCS8, 20 MHz), -74 dBm @ 130 Mbps (MCS15, 20 MHz); -91 dBm @ 15 Mbps (MCS0, 40 MHz), -74 dBm @ 150 Mbps (MCS7, 40 MHz); -91 dBm @ 30 Mbps (MCS8, 40 MHz), -70 dBm @ 300 Mbps (MCS15, 40 MHz)
Radio channels 2.4 GHz	Up to 13 channels, max. 3 non-overlapping (2.4 GHz band)
Radio channels 5 GHz	Up to 19 non-overlapping channels (5 GHz band) with automatic dynamic channel selection (DFS 2)
Roaming	Seamless handover between radio cells, IAPP support, IEEE 802.11d support
802.11i fast roaming	Pre-authentication and PMK caching for fast roaming
Fast client roaming	With background scanning, moving LANCOM "client mode" access points pre-authenticate to alternative access points which offer a better signal before Roaming
VLAN	VLAN ID definable per interface, WLAN SSID, point-to-point connection and routing context (4094 IDs)
Dynamic VLAN assignment	Dynamic VLAN assignment for target user groups based on MAC addresses, BSSID or SSID by means of external RADIUS server.
Q-in-Q tagging	Support of layered 802.1q VLANs
Multi-SSID	Simultaneous use of up to 8 independent WLAN networks per WLAN interface
Security	IEEE 802.11i / WPA2 with passphrase or 802.1x and hardware-accelerated AES, closed network, WEP64, WEP128, WEP152, user authentication, 802.1x /EAP
RADIUS server	Integrated RADIUS server for MAC address list management
EAP server	Integrated EAP server for authentication of 802.1x clients via EAP-TLS, EAP-TTLS, PEAP, MSCHAP or MSCHAPv2
Quality of Service	Prioritization according to Wireless Multimedia Extensions (WME, subset of IEEE 802.11e)
Bandwidth limitation	Each WLAN client (MAC address) can be assigned maximum transmit and receive rates and to an individual VLAN ID
Background scanning	Detection of rogue AP's and the channel information for all WLAN channels during normal AP operation. The Background Scan Time Interval defines the time slots in which an AP or Router searches for a foreign WLAN network in its vicinity. The time interval can be specified in either milliseconds, seconds, minutes, hours or days.
Client detection	Rogue WLAN client detection based on probe requests
802.1x supplicant	Authentication of an access point in WLAN client mode at another access point via 802.1X (EAP-TLS, EAP-TTLS and PEAP)
Note	* The effective distance and transmission rate that can be achieved are depending of the site RF conditions.
802.11n Draft 2.0 Features	
MIMO	MIMO technology is a technique which uses multiple transmitters to deliver multiple data streams via different spatial channels. LANCOM uses a 3 x 3 MIMO Configuration where 2 data streams are spread over 3 transmitters. Depending on the existing RF conditions the throughput is doubled with MIMO technology

802.11n Draft 2.0 Features	
40 MHz Channels	Two adjacent 20 MHz channels are combined to create a single 40 MHz channel. Depending the existing RF Conditions channel bonding doubles the throughput
MAC Aggregation and Block Acknowledgement	MAC Aggregation increase the 802.11 MAC efficiency by combining MAC data frames and sending it out with a single header. The receiver acknowledges the combined MAC frame with a Block Acknowledgement. Depending on existing RF conditions, this technique improves throughput by upto 20%
Short Guard Interval	The guard interval is the time between OFDM symbols in the air. 802.11n gives the option for a shorter 400 nsec guard interval compared to the legacy 800 nsec guard interval. Under ideal RF conditions this increases the throughput by upto 10%
WLAN operating modes	
WLAN access point	Infrastructure mode (autonomous operation or managed by LANCOM WLAN Controller)
WLAN bridge	Point-to-multipoint connection of up to 7 Ethernet LANs (mixed operation optional), broken link detection, blind mode, up to 32 VLANs simultaneously for WLAN connections.
	When configuring Pt-to-Pt links, pre-configured names can be used as an alternative to MAC Adresses for creating a link.
WLAN router	Use of the LAN connector for simultaneous DSL over LAN, IP router, NAT/Reverse NAT (IP masquerading) DHCP server, DHCP client, DHCP relay server, DNS server, PPPoE client (incl.Multi-PPPoE), PPTP client and server, NetBIOS proxy, DynDNS client, NTP, port mapping, policy-based routing based on routing tags, tagging based on firewall rules, dynamic routing with RIPv2, VRRP, spanning-tree protocol to support redundant routes in Ethernet networks
WLAN client	Transparent WLAN client mode for wireless Ethernet extensions, e.g. connecting PCs or printers by Ethernet; up to 64 MAC addresses
Firewall	
Stateful inspection firewall	Incoming/Outgoing Traffic inspection based on connection information
Packet filter	Check based on the header information of an IP packet (IP or MAC source/destination addresses; source/destination ports, DiffServ attribute); remote-site dependant, direction dependant, bandwidth dependant
Extended port forwarding	Network Address Translation (NAT) based on protocol and WAN address, i.e. to make internal webservers accessible from WAN
N:N IP address mapping	N:N IP address mapping for translation of IP addresses or entire networks
Tagging	The firewall marks packets with routing tags, e.g. for policy-based routing
Actions	Forward, drop, reject, block sender address, close destination port, disconnect
Notification	Via e-mail, SYSLOG or SNMP trap
Quality of Service	
Traffic shaping	Dynamic bandwidth management with IP traffic shaping
Bandwidth reservation	Dynamic reservation of minimum and maximum bandwidths, totally or connection bases, separate settings for send and receive directions
DiffServ/TOS	Priority queuing of packets based on DiffServ/TOS fields
Packet-size control	Automatic packet-size control by fragmentation or Path Maximum Transmission Unit (PMTU) adjustment.
Layer 2/Layer 3 tagging	Automatic or fixed translation of layer-2 priority information (802.11p-marked Ethernet frames) to layer-3 DiffServ attributes in routing mode. Translation from layer 3 to layer 2 with automatic recognition of 802.1p-support in the destination device.
Security	
Intrusion Prevention	Monitoring and blocking of login attempts and port scans
IP spoofing	Source IP address check on all interfaces: only IP addresses belonging to the defined IP networks are allowed
Access control lists	Filtering of IP or MAC addresses and preset protocols for configuration access
Denial of Service protection	Protection from fragmentation errors and SYN flooding
General	Detailed settings for handling reassembly, PING, stealth mode and AUTH port
URL blocker	Filtering of unwanted URLs based on DNS hitlists and wildcard filters
Password protection	Password-protected configuration access can be set for each interface
Alerts	Alerts via e-mail, SNMP-Traps and SYSLOG
Authentication mechanisms	EAP-TLS, EAP-TTLS, PEAP, MSCHAP, MXCHAPv2 as EAP authentication mechanisms, PAP, CHAP and MS-CHAP as PPP authentication mechanisms
WLAN protocol filters	Limitation of the allowed transfer protocols, source and target addresses on the WLAN interface
Adjustable reset button	Adjustable reset button for "ignore", "boot-only" and "reset-or-boot"
IP redirect	Fixed redirection of any packet received over the WLAN interface to a dedicated target address

High availability / redundancy	
VRRP	VRRP (Virtual Router Redundancy Protocol) for backup in case of failure of a device or remote station. Enables passive standby groups or reciprocal backup between multiple active devices including load balancing and user definable backup priorities
FirmSafe	For completely safe software upgrades thanks to two stored firmware versions, incl. test mode for firmware updates
Analog/GSM modem backup	Optional operation of an analog or GSM modem at the serial interface
Line monitoring	Line monitoring with LCP echo monitoring, up to 4 addresses for end-to-end monitoring with ICMP polling.

Routing functions	
Router	IP and NetBIOS/IP multi-protocol router
Advanced Routing and Forwarding	Separate processing of 8 contexts due to virtualization of the routers. Mapping to VLANs and complete independent management and configuration of IP networks in the device, i.e. individual settings for DHCP, DNS, Firewalling, QoS, VLAN, Routing etc.
HTTP	HTTP and HTTPS server for configuration by web interface
DNS	DNS client, DNS server, DNS relay, DNS proxy and dynamic DNS client
DHCP	DHCP client, DHCP relay and DHCP server with autodetection
NetBIOS	NetBIOS/IP proxy
NTP	NTP client and SNTP server, automatic adjustment for daylight-saving time
Policy-based routing	Policy-based routing based on routing tags. Based on firewall rules, certain data types are marked for specific routing, e.g. to particular remote sites or lines.
Dynamic routing	Dynamic routing with RIPv2. Learning and propagating routes; separate settings for LAN and WAN. Extended RIPv2 including HopCount, Poisoned Reverse, Triggered Update for LAN (acc. to RFC 2453) and WAN (acc. to RFC 2091) as well as filter options for propagation of routes
Rapid Spanning Tree	802.1d Spanning Tree and 802.1w Rapid Spanning Tree support for dynamic path selection with redundant layer 2 connections

LAN protocols	
IP	ARP, proxy ARP, BOOTP, DHCP, DNS, HTTP, HTTPS, IP, ICMP, NTP/SNTP, NetBIOS, PPPoE (server), RADIUS, RIP-1, RIP-2, RTP, SIP, SNMP, TCP, TFTP, UDP, VRRP

WAN protocols	
Ethernet	PPPoE, Multi-PPPoE, ML-PPP, PPTP (PAC or PNS) and plain Ethernet (with or without DHCP), RIP-1, RIP-2, VLAN

Interfaces	
LAN	10/100/1000 Base-TX, autosensing, auto node hub, PoE compliant with IEEE 802.3af
DSL over LAN (DSLoL)	The LAN port can (even parallel to LAN mode) be used as a WAN port for connecting external DSL modems (PPPoE) or external routers.
Serial interface	Serial configuration interface / COM port (8 pin Mini-DIN): 9,600 - 115,000 baud, suitable for optional connection of analog/GPRS modems

Management	
LANconfig	Configuration program for Microsoft Windows, incl. convenient Setup Wizards. Optional group configuration, simultaneous remote configuration and management of multiple devices over IP connection (HTTPS, HTTP, TFTP). Configuration program preferences per project or user or global
LANmonitor	Monitoring application for Microsoft Windows for (remote) surveillance and logging of the status of LANCOM devices and connections, incl. PING diagnosis and TRACE with filters and save to file
WLANmonitor	Monitoring application for Microsoft Windows for the visualization and monitoring of LANCOM WLAN installations, incl. Rogue AP and Rogue Client visualization
Webconfig	Integrated web server for the configuration of LANCOM devices via Internet browsers with HTTPS or HTTP
Access rights	Individual access and function rights for up to 16 administrators
User administration	RADIUS user administration for dial-in access (PPP/PPTP). Support for RADSEC (Secure RADIUS) providing secure communication with RADIUS servers
Remote maintenance	Remote configuration with Telnet/SSL, SSH (with password or public key), browser (HTTP/HTTPS), TFTP or SNMP, firmware upload via HTTP/HTTPS or TFTP. A remote configuration for devices behind der LANCOM can be accomplished (after authentication) via tunneling of arbitrary TCP-based protocols, e.g. for HTTP(S) remote maintenance of VoIP phones or printers of the LAN
Security	Access rights (read/Write) over WAN or (W)LAN can be set up separately (Telnet/SSL, SSH, SNMP, HTTPS/HTTP), access control list
Scripting	Scripting function for batch-programming of all command-line parameters and for transferring (partial) configurations, irrespective of software versions and device types, incl. test mode for parameter changes
SNMP	SNMP management via SNMP V2, private MIB exportable by WEBconfig, MIB II
Timed control	Scheduled control of parameters and actions with CRON service

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Management	
TFTP	TFTP client and server with variable file names (name, MAC/IP address, serial number)
Diagnosis	Extensive LOG and TRACE options, PING and TRACEROUTE for checking connections, LANmonitor status display, internal logging buffer for SYSLOG and firewall events
LANCOM WLAN Controller	Supported by all LANCOM WLAN Controller (separate optional hardware equipment for installation, optimization, operating and monitoring of WLAN networks)
Statistics	
Statistics	Extensive Ethernet, IP and DNS statistics; SYSLOG error counter
Accounting	Connection time, online time, transfer volumes per station. Snapshot function for regular read-out of values at the end of a billing period.
Export	Accounting information exportable via LANmonitor and SYSLOG
Hardware	
Power supply	12 V DC, external power adapter (230 V)
Power supply	Via Power over Ethernet, compliant with IEEE 802.3af
Environment	Temperature range 0–35°C; humidity 0–95%; non-condensing
Housing	Robust synthetic housing, rear connectors, ready for wall mounting, Kensington lock; 210 x 45 x 140 mm (W x H x D)
Power consumption (max)	approx. 9.5 Watts
Declarations of conformity	
CE	EN 301 489-1, EN 301 489-17, EN 60950
2.4 GHz WLAN	ETS 300 328
5 GHz WLAN	EN 301 893 version 1.3.1 (incl. DFS 2)
Medical	Medical conformity with EN 60601-1-2
Notifications	Certifications notified in Germany, Belgium, Netherlands, Luxembourg, Austria, Switzerland, UK, Italy, Spain, France, Portugal, Czech Republic, Denmark, Malta
Package content	
Manual	Printed User Manual (DE, EN) and Quick Installation Guide (DE/EN/FR/ES/IT/PT/NL)
CD	CD with firmware, management software (LANconfig, LANmonitor, WLANmonitor) and documentation
Cable	Serial configuration cable, 1.5m
Cable	1 Ethernet cable, 3m
Power supply unit	12 V DC, external power adapter (230 V)
Support	
Warranty	3 years Support via Hotline and Internet KnowledgeBase
Software updates	Regular free updates (LCOS operating system and management tools) via Internet
Options	
Service	LANCOM Service Option (24h advance replacement within Germany, 4 year warranty, not for PoE Power Injector), item no. 61401
Public Spot	LANCOM Public Spot Option (authentication and accounting software for hotspots). Expanded in LCOS 7.5x to include the Voucher Wizard. The Wizard allows easy set-up of guest accounts and the vouchers can be printed over any standard Printer on the network. Works without external RADIUS and Accounting Servers. Item no. 60642.

Accessories	
LANCOM WLC-4006	LANCOM WLAN Controller for central management of 6 or 12 LANCOM access points and WLAN routers, item no. 61367
LANCOM WLC-4006 (UK)	LANCOM WLAN Controller for central management of 6 or 12 LANCOM access points and WLAN routers, item no. 61368 for UK
LANCOM WLC-4025	LANCOM WLAN Controller for central management of 25, 50 or 100 LANCOM access points and WLAN routers, item no. 61550
LANCOM WLC-4025 (UK)	LANCOM WLAN Controller for central management of 25, 50 or 100 LANCOM access points and WLAN routers, item no. 61551 for UK
Documentation	LANCOM LCOS Reference Manual (DE), item no. 61700
Power over Ethernet Injector	LANCOM PoE Power Injector, item no. 61502
Power over Ethernet Switch	LANCOM ES-1108P, 8 port switch with 4 PoE ports, item no. 61450
Item numbers	
LANCOM L-305agn Wireless	61522
LANCOM L-305agn Wireless UK	61523

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